

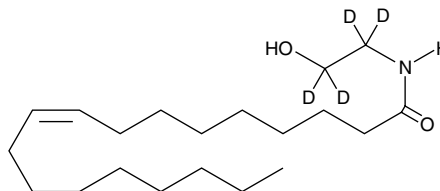
# Product Information



## Oleoyl Ethanolamide-d<sub>4</sub>

Item No. 9000552

<b>Formal Name:</b>	N-(2-hydroxyethyl-1,1,2,2-d <sub>4</sub> )-9Z-octadecenamide
<b>Synonyms:</b>	OEA-d <sub>4</sub> , Oleic Acid Ethanolamide-d <sub>4</sub>
<b>MF:</b>	C <sub>20</sub> H <sub>35</sub> D <sub>4</sub> NO <sub>2</sub>
<b>FW:</b>	329.6
<b>Chemical Purity:</b>	≥98% Oleoyl Ethanolamide
<b>Deuterium</b>	
<b>Incorporation:</b>	≥99% deuterated forms (d <sub>1</sub> -d <sub>4</sub> ); ≤1% d <sub>0</sub>
<b>Stability:</b>	≥1 year at -20°C
<b>Supplied as:</b>	A solution in ethanol



### Laboratory Procedures

Oleoyl ethanolamide-d<sub>4</sub> (OEA-d<sub>4</sub>) contains four deuterium atoms at the hydroxyethyl 1, 1', 2, and 2' positions. It is intended for use as an internal standard for the quantification of OEA by GC- or LC-mass spectrometry (MS). For long term storage, we suggest that OEA-d<sub>4</sub> be stored as supplied at -20°C. It should be stable for at least one year.

OEA-d<sub>4</sub> is supplied as a solution in ethanol. To change the solvent, simply evaporate the ethanol under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as DMSO and dimethyl formamide purged with an inert gas can be used. The solubility of OEA-d<sub>4</sub> in these solvents is approximately 100 mg/ml.

OEA-d<sub>4</sub> is used as an internal standard for the quantification of OEA by stable isotope dilution MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

OEA is an analog of the endocannabinoid arachidonoyl ethanolamide (AEA) found in brain tissue and in chocolate.<sup>1</sup> It is one of the long chain fatty acid ethanolamides that accumulates rapidly in infarcted tissue,<sup>2</sup> but its biosynthesis is reduced in the intestine of rats following food deprivation.<sup>3</sup> OEA is an endogenous, potent agonist for PPAR $\alpha$ , exhibiting an EC<sub>50</sub> value of 120 nM in a transactivation assay.<sup>4</sup> Systemic administration of OEA suppresses food intake and reduces weight gain in rats (10 mg/kg intraperitoneally) and PPAR $\alpha$  wild-type mice, but not in PPAR $\alpha$  knockout mice.<sup>3,4</sup> These data indicate that OEA regulates food intake by a PPAR $\alpha$ -mediated mechanism.

### References

1. di Tomaso, E., Beltramo, M., and Piomelli, D. Brain cannabinoids in chocolate. *Nature* **382**, 677-678 (1996).
2. Epps, D.E., Palmer, J.W., Schmid, H.H.O., *et al.* Inhibition of permeability-dependent Ca<sup>2+</sup> release from mitochondria by N-acelethanolamines, a class of lipids synthesized in ischemic heart tissue. *J. Biol. Chem.* **257**, 1383-1392 (1982).
3. de Fonseca, F.R., Navarro, M., Gómez, R., *et al.* An anorexic lipid mediator regulated by feeding. *Nature* **414**, 209-212 (2001).
4. Fu, J., Gaetani, S., Oveisi, F., *et al.* Oleylethanolamide regulates feeding and body weight through activation of the nuclear receptor PPAR- $\alpha$ . *Nature* **425**, 90-93 (2003).

### Related Products

For a list of related products please visit: [www.caymanchem.com/catalog/9000552](http://www.caymanchem.com/catalog/9000552)

**WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.**

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